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| Applicants: | Mats Sagfors, *et al.* | § | Group Art Unit: | 2617 |
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For: Method and System of Channel Resource Allocation

***Via EFS-Web***

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## APPLICANTS' REPLY BRIEF FILED UNDER 37 C.F.R. §1.193(b)(1)

In response to the Examiner's Answer having a mail date of March 31, 2011, the Applicants submit this reply brief to address the Examiner's arguments.

## Rebuttal of Examiner's Answer

### 1.) CLAIMS 50-53, 55, 57-60 AND 62 ARE NOT ANTICIPATED BY GRUBE, *et al.* (U.S. PATENT NO. 5,583,869)

In responding to Applicants' Appeal Brief, the Examiner responds, in part, to Applicants argument that:

> . . . Grube teaches that an average message delay profile is based on "running averages of the transmission delays encountered for each message type" (column 6, line 52, *et seq.*). Thus, whereas Grube teaches a grade of service based on an average message delay, which is based on an ***historical measure*** of transmission delays, it is inherently ***not*** based on a ***prediction*** of a ***future*** data rate based on information related to data object size, ***which is obtained by sniffing for information within***

***one or more application-level data packets within a data transmission***. [emphasis in original]

In response to that portion of Applicants' argument, the Examiner states that he disagrees, and presents reasons why he believes Grube teaches predicting a "future data rate." In support of that assertion, the Examiner argues that:

> Consider the limitation, a future data rate is predicted. The future data rate includes the bits/time it takes bits to be transferred at time t >0 (e.g., the future) or the expected data rate. Another way to view this statement is that, at time t > 0, a particular data rate is expected and accordingly, an appropriate radio resources are allocated. Consider that the predicted completion time (e.g., seconds) for a message is directly related to the rate at which the bits are transferred (i.e., the data rate = bits/second transferred). The data message includes the number of bits. **Therefore, in order to predict the completion time, one must essentially predict or expect what the future data rate will be, albeit the current rate or a different rate (i.e., predicting that that current data rate will be maintained)**. In the instant case, the future/expected data rate = estimated_number_of_untransmitted_data_bits / predicted_completion_time (bits/seconds). Carefully note the units in bits per second reflecting a data rate, which is predicted/expected to happen (e.g., in the future). As noted, the future data rate is proportional to the predicted time resulting in a predicted data rate. Grube et al. note that the controller calculates the **predicted completion time** noted above "by dividing the estimate of the number of untransmitted bytes by the **current** transfer rate of the first number of wireless communication resources" - col. 5 lines 50-57. Furthermore, by allocating a greater number of resources, the transfer rate is increased - col. 6 lines 15-16. Applicant argues that Grube fails to teach the allocation of radio resources based on a predicted future data rate, however, based on the explanation above the examiner respectfully disagree. Furthermore, carefully note that one particular manner in which Grube allocates resources is based on determining if the transfer rate of a application message (e.g., x-ray file) is sufficient to proceed into the future (e.g., t>O ) at the **current** rate or some different rate. In other words, is the **current** rate a sufficient future transfer rate based on the message length/completion time or does the system need a more comparable future rate via additional resources- col. 5 line 64-col. 6 line 21. [emphasis added]

The Examiner's argument is premised on equating "predicted completion time" for the transmission of a message, as described by Grube, to Applicants' claim limitation of predicting a future date rate based on information related to data object size, which is obtained by sniffing for information within one or more application-level data packets within a data transmission. As emphasized in the Examiner's arguments, presented

*supra*, the Examiner acknowledges that Grube only teaches predicting a ***completion time*** for the transmission of a message based on the ***current*** transfer rate. In an attempt to argue that Grube's predicted ***completion time*** should be equated to Applicants' claimed predicted ***future*** data rate, the Examiner asserts that "in order to predict the completion time, one must essentially ***predict*** or expect what the future data rate will be, albeit the current rate or a different rate (*i.e.*, predicting that the current data rate will be maintained)." The Examiner's argument, however, is based on the fallacy of equating a prediction with an assumption. The teachings of Grube ***assume*** that the ***current*** data rate will be maintained and, thus, a predicted ***completion time*** for transmission of a message is simply the number of untransmitted bits divided by the ***current*** rate of transmission in bits/second. Grube never describes ***predicting*** a future data rate, much less predicting such a data rate based on ***sniffing for information within one or more application-level data packets within a data transmission***.

Furthermore, according to the teachings of Grube, sufficient resources are ***already allocated*** to transmit a message using the ***current*** data rate. In contrast, the Applicants' invention is characterized, in part, by the step of "***allocating*** radio resources as a function of [a] data object size [determined by sniffing data transmissions], wherein [the] step of allocating radio resources comprises the step of predicting a future data rate from the information related to data object size." The Examiner's interpretation would read out of Applicants' claim the complete step of allocating radio resources as a function of a ***predicted future*** data rate; *i.e.*, the claim limitation would be superfluous and meaningless in view of the Examiner's interpretation.

***Finally, the Examiner's interpretation is incorrect based on the explicit teachings of Grube***. (Refer to column 5; line 60, *et seq.*) According to Grube, the predicted *completion time* for transmission of a message is determined based on the ***current*** data rate. Subsequently, it is determined whether that predicted *completion time* is less than or greater than a predetermined threshold. If the predicted *completion time* is less than the predetermined threshold, "it is assumed that the transfer rate of the message [ ] is sufficient, and no additional resources need be allocated." (column 6; line 1, *et seq.*) If, however, the predicted *completion time* is greater than the predetermined threshold, "a second number of wireless communication resources, greater than the first

number of wireless communication resources, are allocated." (column 6; line 10, *et seq.*) Thus, it can be seen that Grube allocates communication resources as a function of whether or not a predicted completion time for transmission of a message is less than or greater than a predetermined threshold; the predicted completion time, *however,* is based on the ***current*** data rate. ***In contrast***, the Applicants' invention is characterized by *actually* ***predicting*** a required ***future*** data rate, based on sniffing ***for information within one or more application-level data packets within a data transmission***; based on that ***predicted future*** data rate, the Applicants' invention then allocates radio resources. Therefore, whereas anticipation requires that a prior art reference teach **every** element, or limitation, of a claimed invention, and Grube fails to teach the allocation of radio resources based on a ***predicted future*** *data rate based on information related to data object size, which is obtained by sniffing for information within one or more application-level data packets within a data transmission*, **claim 50 is not anticipated by Grube**.

Whereas independent claim 57 includes limitations analogous to those of claim 50, Grube also fails to anticipate that claim. Moreover, whereas claims 51-53 and 55 are dependent from claim 50, and claims 58-60 and 62 are dependent from claim 57, and include the limitations of their respective base claims, those claims are also not anticipated by Grube.

## 2.) CLAIMS 56 AND 63 ARE PATENTABLE OVER GRUBE IN VIEW OF HELLER

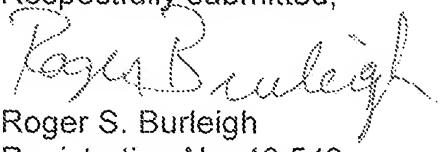
The Examiner has rejected claims 56 and 63 as being unpatentable over Grube in view of Heller (U.S. Patent Publication No. 2003/0043844 A1). As established *supra*, independent claims 50 and 57 are not anticipated by Grube. The Examiner has not pointed to any teaching in Heller to overcome the deficiencies in the teachings of Grube; thus, claims 50 and 57 are patentable over Grube in combination with Heller. Therefore, whereas claims 56 and 63 are dependent from claims 50 and 57, respectively, and include the limitations thereof, they are also patentable over Grube in view of Heller.

* * *

## CONCLUSION

As established by the arguments in Appellants' original brief, and further elaborated herein in response to the Examiner's Answer, claims 50-53, 55-60, 62 and 63 are patentable over the prior art of record, and the Applicants request that the rejections thereof be reversed and the application be remanded for further prosecution.

Respectfully submitted,



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